## WHAT IS CLAIMED IS

- A method for updating timing information in a wireless
   communication network, comprising:
- 2 communication network, comprising.
- 3 detecting, at a mobile unit, signal data containing accurate timing
- 4 information, wherein said mobile unit is in an area serviced by a base
- 5 station;
- 6 deriving accurate timing information from said signal data;
- 7 generating association data associating said accurate timing
  - 8 information with base station timing information maintained by said base
  - 9 station; and
- 10 updating network timing information for said base station using said
- 11 association data.
  - 1 2. The method of claim 1, wherein said network timing information is
  - 2 updated using timing information received from a plurality of mobile units in
  - 3 said area.
  - 1 3. The method of claim 1 further comprising:
  - 2 updating network timing information for a plurality of base stations in
  - 3 said wireless communication network.
  - 1 4. The method of claim 3, further comprising:
  - 2 forwarding portions of said network timing information to said
  - 3 plurality of base stations in said wireless communication network.
  - 1 5. The method of claim 1, wherein said signal data is global positioning
  - 2 satellite (GPS) signal data.

6. The method of claim 5, wherein said detecting signal data containing accurate timing information comprises:

receiving, via a GPS antenna, GPS signal data.

- 7. The method of claim 6, wherein said deriving accurate timinginformation from said signal data comprises:
- 2 Information from Said Signal data comprises.
- deriving GPS timing information from said GPS signal data in said

  mobile unit
- The method of claim 6, wherein said deriving accurate timing
   information from said signal data comprises:
- deriving GPS timing information from said GPS signal data at a
   central network authority.
- The method of claim 7, wherein said generating association data
   further comprises:
- identifying the base station time at which said GPS signal data isdetected;
- forwarding said base station time along with said GPS timing information to a central network authority; and
- 7 generating said association data at a central network authority.
- 1 10. The method of claim 8, wherein said generating association data 2 further comprises:
- identifying the base station time at which said GPS signal data isdetected:
- forwarding said base station time along with said GPS signal data to a said central network authority; and
- 7 generating said association data at said central network authority.

- 1 11. The method of claim 1, wherein said generating association data is
- 2 performed at said mobile unit, the method further comprising:
- 3 forwarding said association data to a central network authority.
- 1 12. The method of claim 1, wherein said association data is stored at a
- 2 central network authority.
- 1 13. The method of claim 1, wherein said association data is used to
- 2 update data at a central network authority.
- 1 14. The method of claim 1, further comprising:
- 2 repeating said generating and updating each time a mobile unit in
- 3 said network detects signal data containing accurate timing information.
- 1 15. The method of claim 1, further comprising:
- 2 repeating said generating and updating each time a mobile unit in
- 3 said network is instructed to detect signal data containing accurate timing
- 4 information.
- 1 16. The method of claim 1, further comprising:
- 2 forwarding a portion of said network timing information to a second
- 3 mobile unit.
- 1 17. A network timing system, comprising:
- 2 a receiver at a mobile unit configured to detect signal data
- 3 containing accurate timing information, wherein said mobile unit is in an
- 4 area serviced by a base station;
- 5 a processing device configured to derive accurate timing information
- 6 from said signal data; and
- 7 a central network authority, coupled to receive said accurate timing
- 8 information and configured to generate association data associating said

- 9 accurate timing information with base station timing information maintained
- 10 by said base station, and to provide said accurate timing information and
- 11 association data to said base station to provide updated network timing at
- 12 said base station.
  - 1 18. The network timing system of claim 17, further comprising:
- 2 a plurality of mobile units in said area, each having a receiver
- 3 configured to detect signal data containing accurate timing information.
- 1 19. The network timing system of claim 17, wherein said processing
- 2 device to derive accurate timing information is located at one of said mobile
- 3 unit and said central network authority.
- 1 20. The network timing system of claim 17, wherein said further
- 2 comprising a plurality of mobile units in a plurality of areas, each area
- 3 serviced by at least one base station, wherein said central network
- 4 authority is configured to provide updated network timing at each of said
- 5 base stations.
- 1 21. The network timing system of claim 20, wherein said central network
- 2 authority is configured to provide updated network timing information to
- 3 one or more of said plurality of mobile units.
- 1 22. The network timing system of claim 20, further comprising at least
- 2 one mobile unit in said area configured without a receiver, wherein said
- 3 central network authority is configured to provide updated network timing
- 4 information to said at least one mobile unit.
- 1 23. The network timing system of claim 17, wherein said signal data is
- 2 GPS signal data and wherein said processing device, located at one of

8

10

said mobile unit and said central network authority, is configured to derive 3 GPS timing information from said GPS signal data. 4 The network timing system of claim 23, wherein said association 1 24. 2 data comprises: 3 information identifying said base station; 4 information identifying the base station time at which said GPS signal data is detected; and 5 6 said GPS timing information. A network timing method in a network including a central network 1 25. 2 authority and a plurality of areas each serviced by at least one base 3 station, comprising: detecting, at a mobile unit in one of said areas, GPS signal data; 4 5 deriving, at one of said mobile unit and said central network 6 authority, GPS timing information from said GPS signal data; 7 associating said GPS timing information with base station timing

information from said base station in said area; and

GPS timing information and said base station timing information.

updating network timing information for said base station using said